

## **CHAPTER 2**

### **DESCRIPTION OF THE OBION (SOUTH FORK) RIVER WATERSHED**

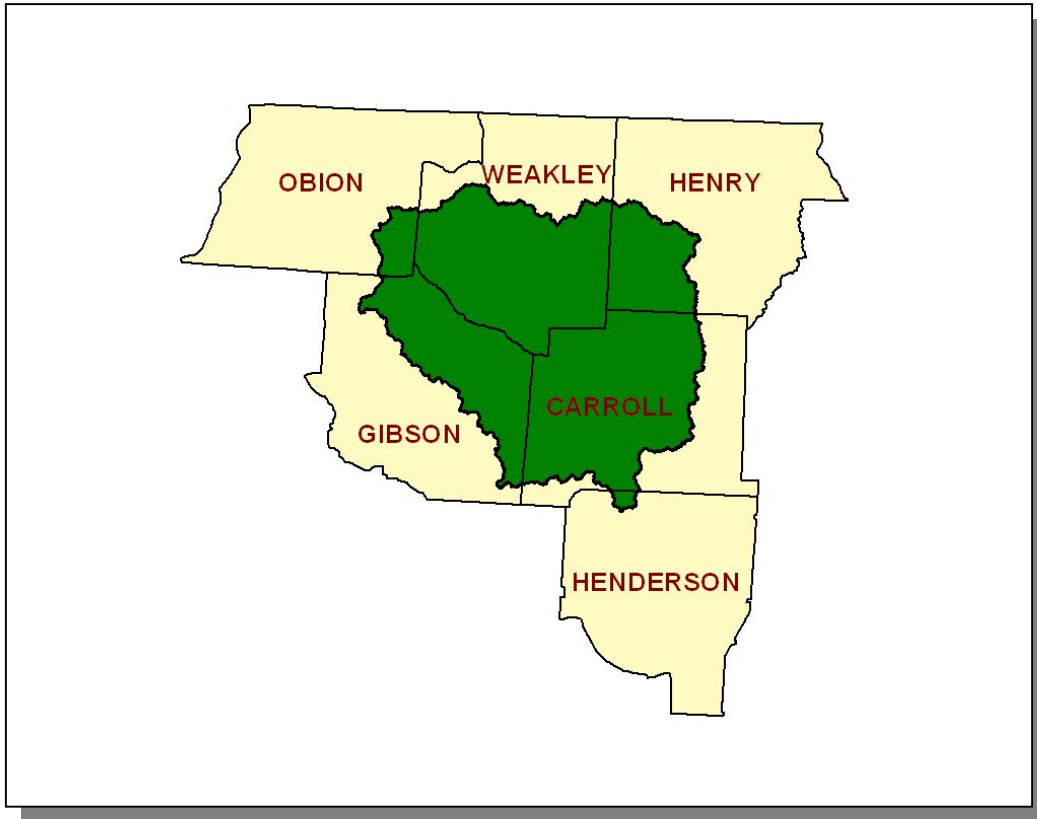
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**2.1. BACKGROUND.** Obion is thought to be a Chickasaw Indian name meaning "river of many forks". The Obion River system is the primary surface water drainage system of northwest Tennessee and is comprised of four major forks, the North Fork, Middle Fork, South Fork and Rutherford Fork, that flow as separate streams for the majority of their lengths. The confluences of these forks are only a few miles above the mouth of the Obion's discharge into the Mississippi River.

This Chapter describes the location and characteristics of the Obion River (South Fork) Watershed.

## **2.2. DESCRIPTION OF THE WATERSHED.**

**2.2.A. General Location.** The Obion River (South Fork) Watershed is located in West Tennessee and includes parts of Carroll, Gibson, Henderson, Henry, Obion, and Weakley Counties.

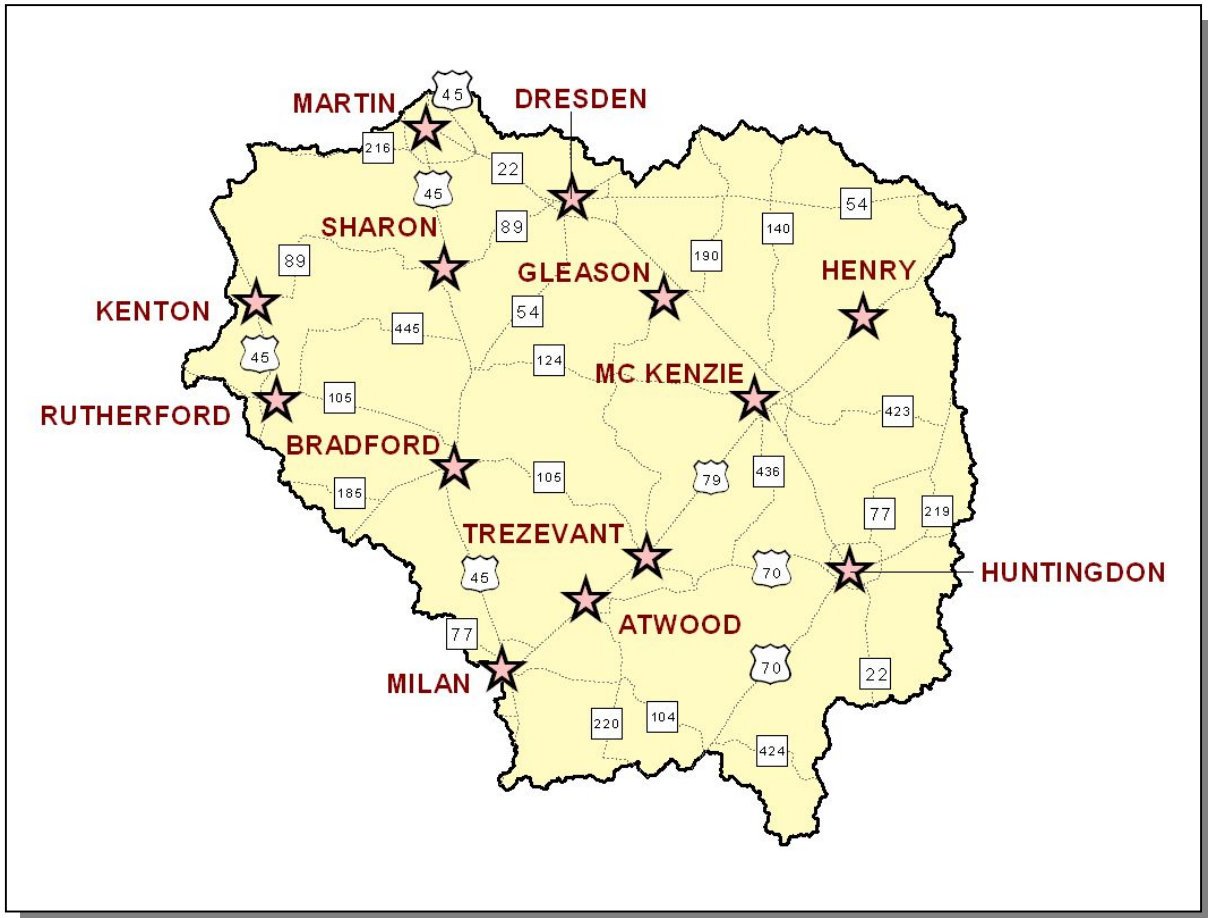


*Figure 2-1. General Location of the Obion River (South Fork) River Watershed.*

COUNTY	% OF WATERSHED IN EACH COUNTY
Carroll	33.85
Weakley	31.33
Gibson	20.03
Henry	11.02
Obion	3.25
Henderson	0.53

*Table 2-1. The Obion River (South Fork) Watershed Includes Parts of Six West Tennessee Counties.*

**2.2.B. Population Density Centers.** Twenty-nine highways serve the major communities in the Obion River (South Fork) Watershed.



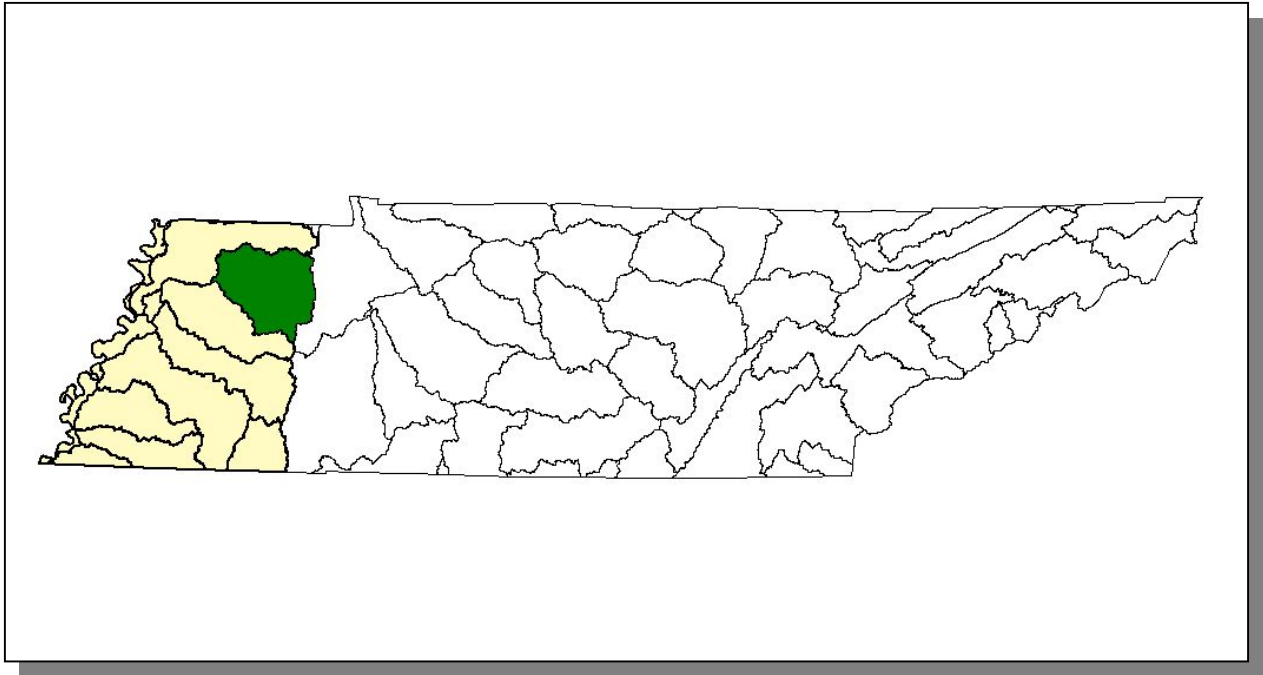
**Figure 2-2. Communities and Roads in the Obion River (South Fork) Watershed.**

MUNICIPALITY	POPULATION	COUNTY
Martin	10,515	Weakley
Milan	7,821	Gibson
McKenzie	5,295	Carroll, Henry, Weakley
Huntingdon*	4,349	Carroll
Dresden*	2,855	Weakley
Gleason	1,463	Weakley
Kenton	1,306	Gibson, Obion
Rutherford	1,272	Gibson
Bradford	1,113	Gibson
Atwood	1,000	Carroll
Sharon	988	Weakley
Trezevant	901	Carroll
Henry	520	Henry

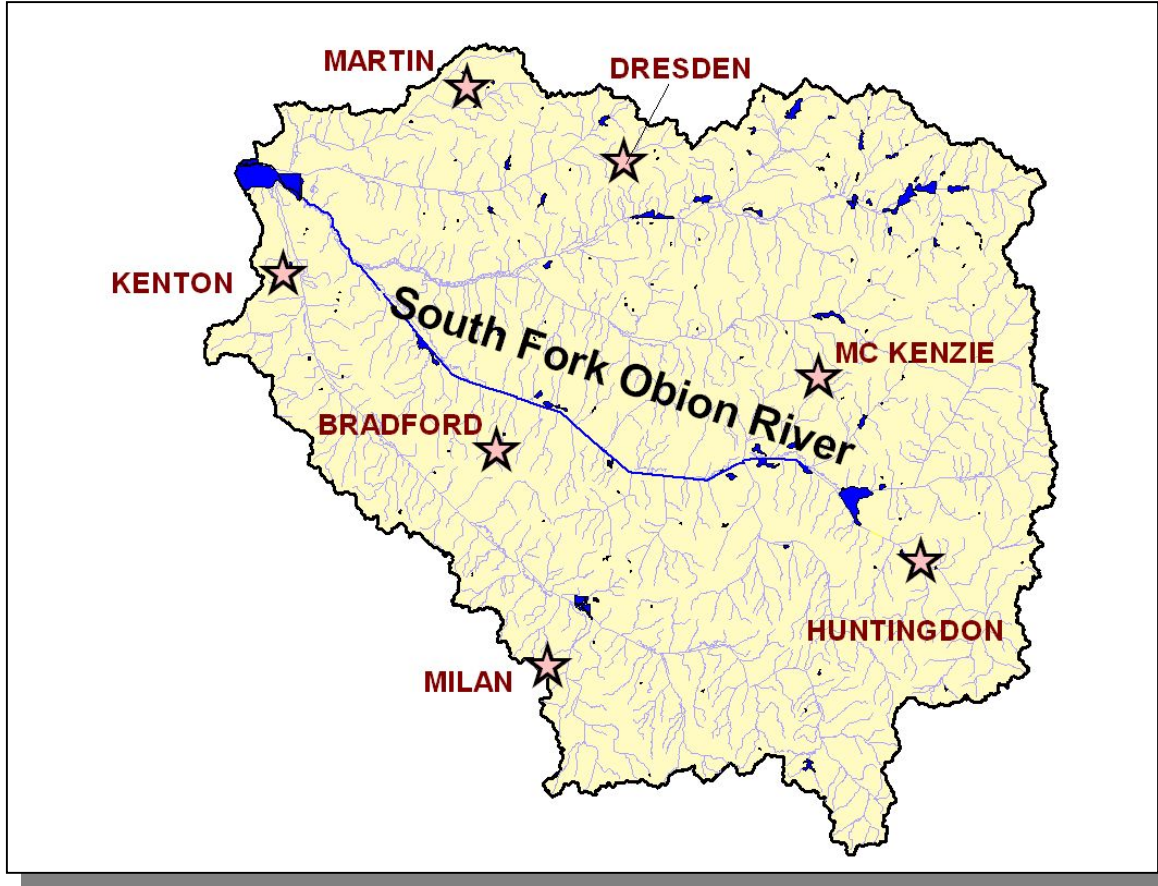
**Table 2-2. Municipalities in the Obion River (South Fork).** Population based on 2000 census (Tennessee Blue Book) or <http://www.hometownlocator.com>. Asterisk (\*) indicates county seat.

### **2.3. GENERAL HYDROLOGIC DESCRIPTION.**

**2.3.A. Hydrology.** The Obion River (South Fork) Watershed, designated 08010203 by the USGS, is approximately 1,157 square miles and drains to the Obion River.

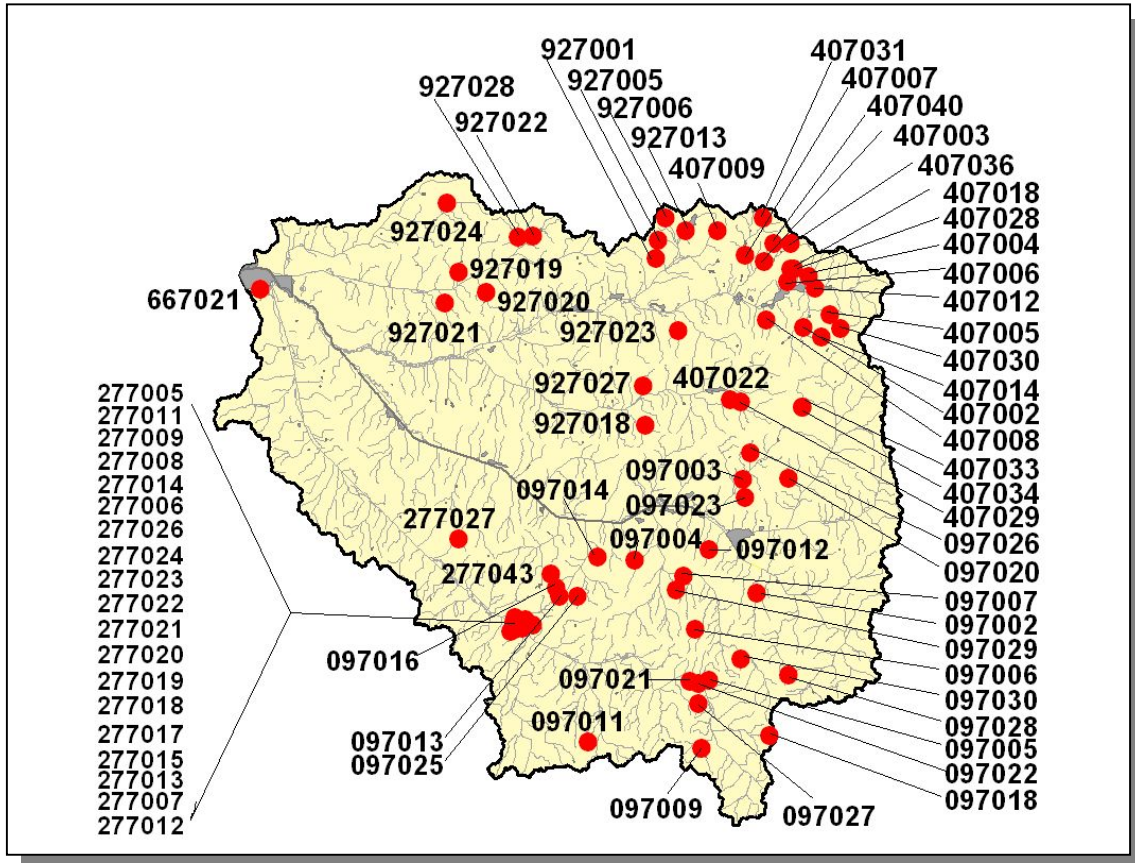


*Figure 2-3. The Obion River (South Fork) Watershed is Part of the Mississippi River Basin.*



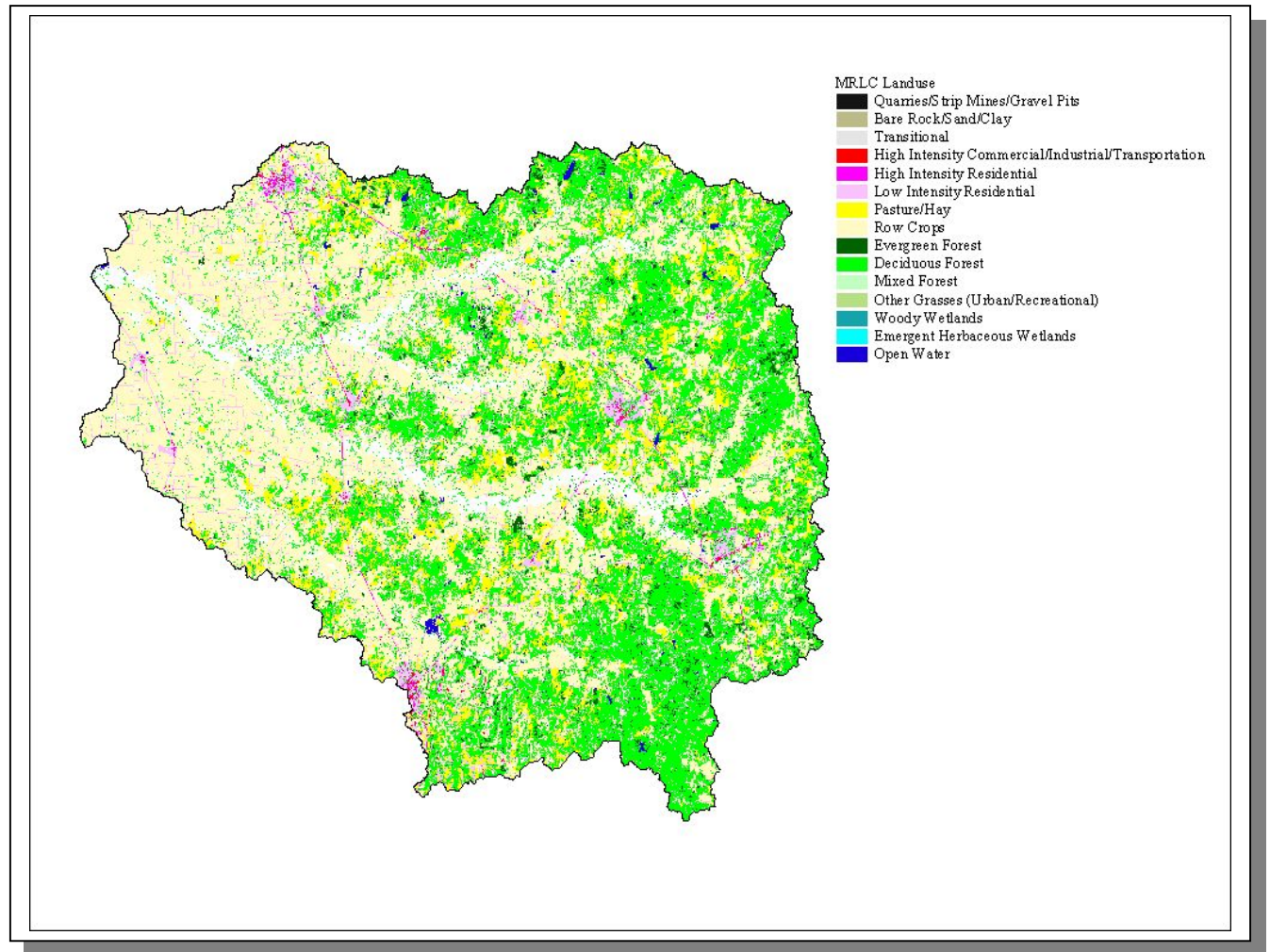
**Figure 2-4. Hydrology in the Obion River (South Fork) Watershed.** There are 1,841.1 stream miles recorded in River Reach File 3 in the Obion River (South Fork) Watershed. Location of the South Fork Obion River and the cities of Bradford, Dresden, Huntingdon, Kenton, Martin, McKenzie, Milan are shown for reference.

**2.3.B. Dams.** There are 78 dams inventoried by TDEC Division of Water Supply in the Obion River (South Fork) Watershed. These dams either retain 30 acre-feet of water or have structures at least 20 feet high.

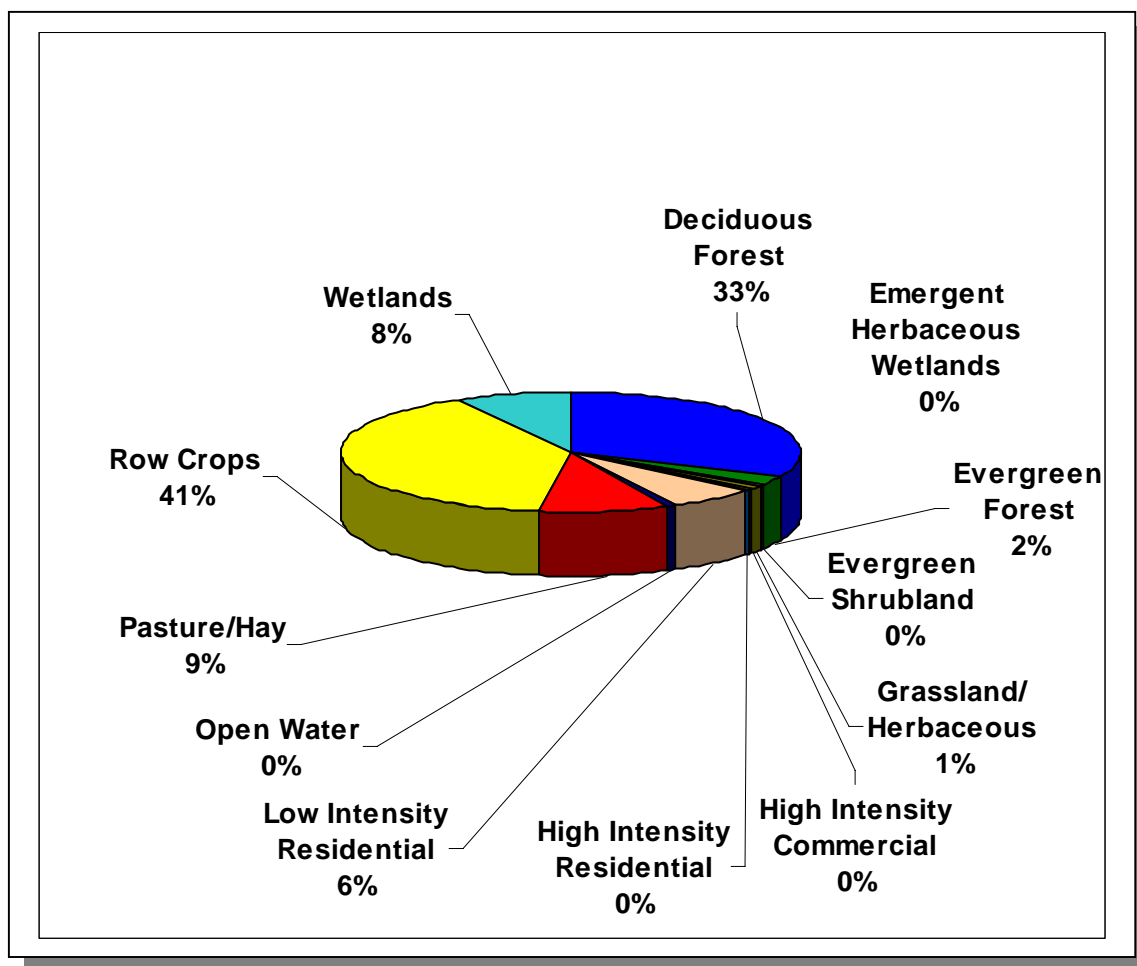


**Figure 2-5. Location of Inventoried Dams in the Obion River (South Fork) Watershed.** More information, including identification of inventoried dams labeled, is provided in Appendix II and at <http://gwidc.memphis.edu/website/dams/viewer.htm>.

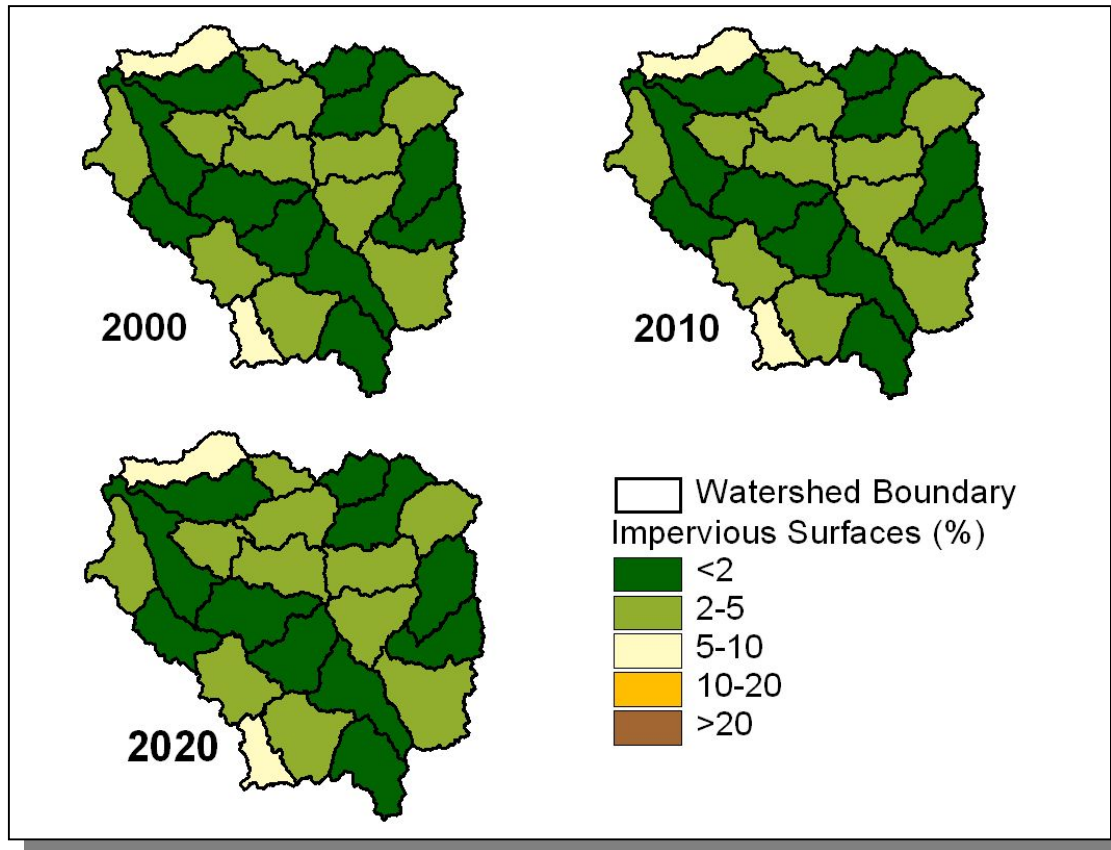
**2.4. LAND USE.** Land Use/Land Cover information was provided by EPA Region 4 and was interpreted from 2001 Multi-Resolution Land Cover (MRLC) satellite imagery.



*Figure 2-6. Illustration of Select Land Cover/Land Use Data from MRLC Satellite Imagery.*



**Figure 2-7. Land Use Distribution in the Obion River (South Fork) Watershed.** More information is provided in Appendix II.

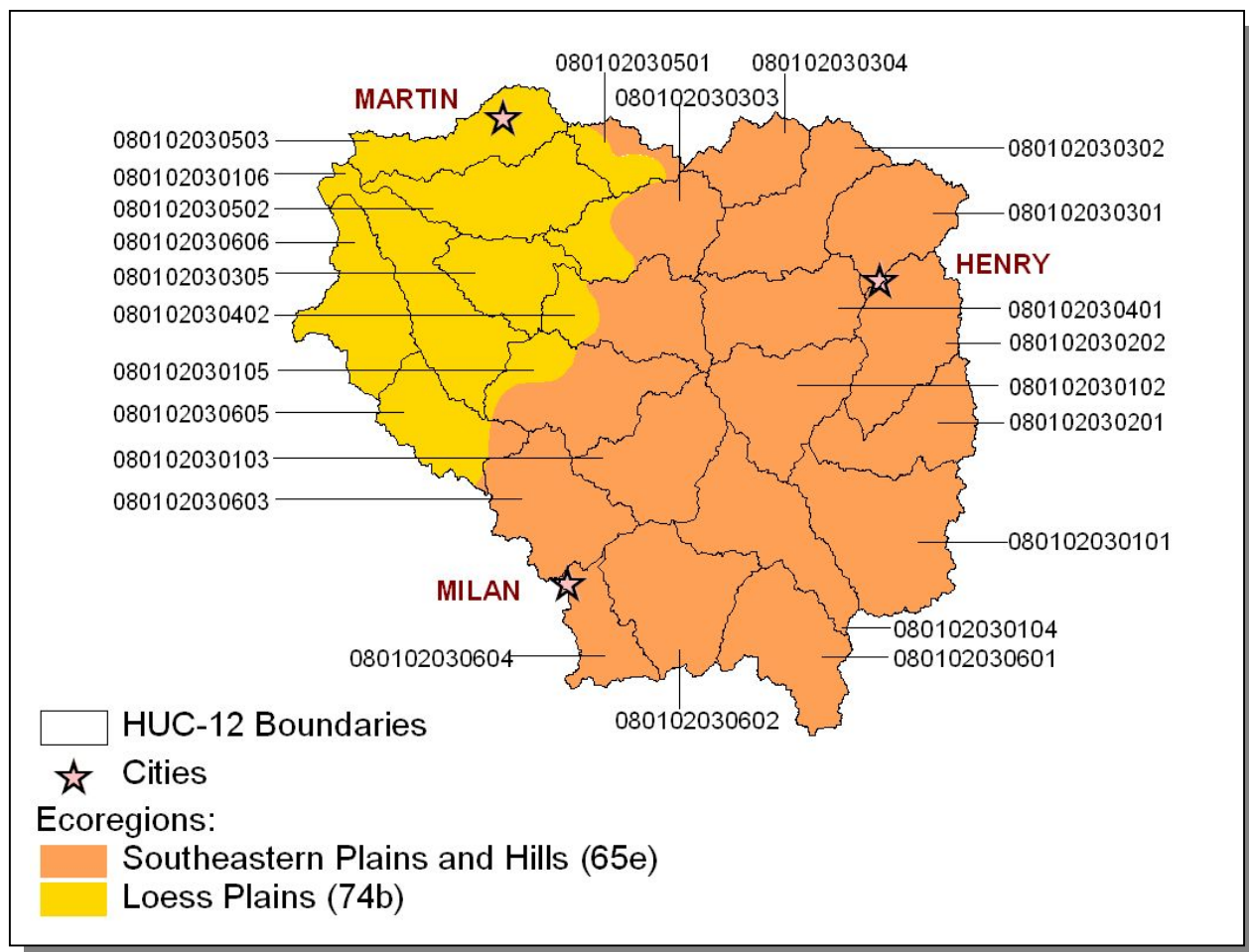


**Figure 2-9. Illustration of Total Impervious Area in the Obion River (South Fork) Watershed.** All HUC-12 subwatersheds are shown. Current and projected total impervious cover is provided by EPA Region 4. More information can be found at: <http://www.epa.gov/ATHENS/research/impervious/>

**2.5. ECOREGIONS AND REFERENCE STREAMS.** Ecoregions are relatively homogeneous areas of similar geography, topography, climate and soils that support similar plant and animal life. Ecoregions serve as a spatial framework for the assessment, management, and monitoring of ecosystems and ecosystem components. Ecoregion studies can aid the selection of regional stream reference sites, identifying high quality waters, and developing ecoregion-specific chemical and biological water quality criteria.

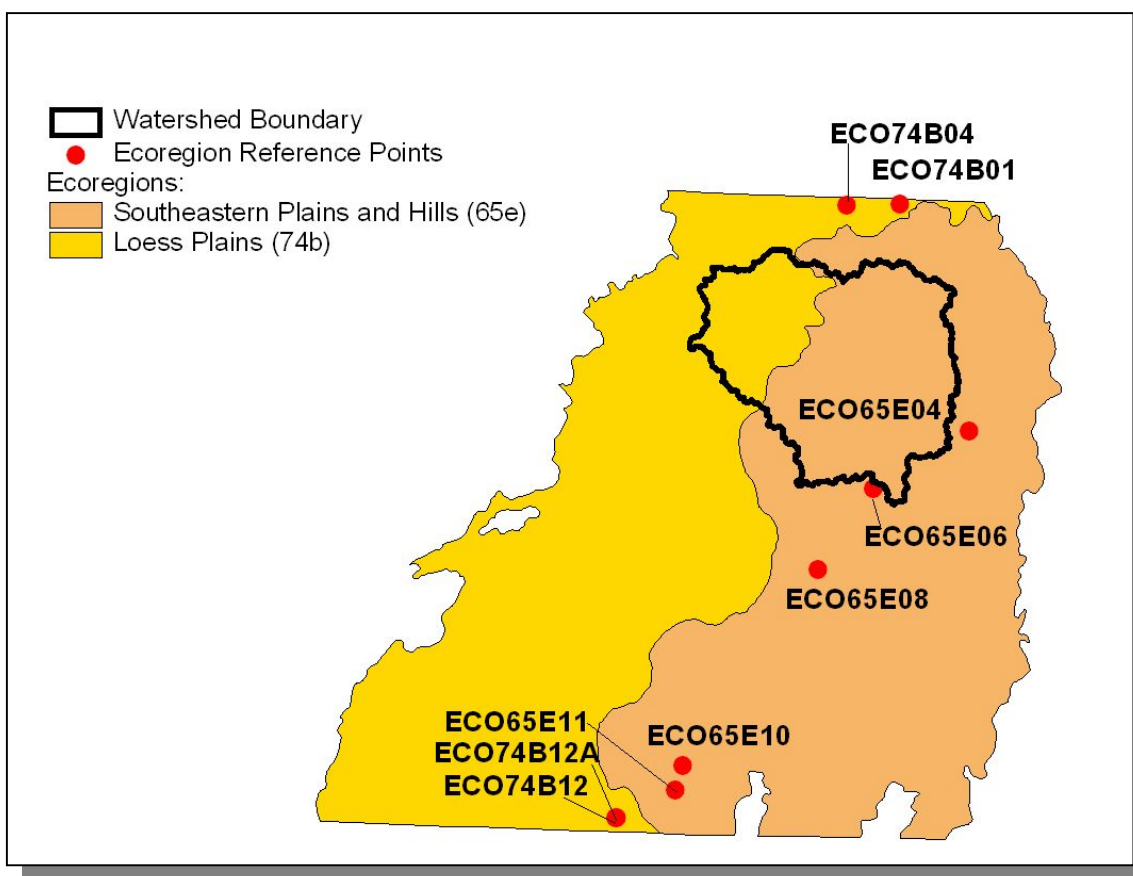
There are eight Level III Ecoregions and twenty-five Level IV subecoregions in Tennessee. The Obion (South Fork) River Watershed lies within 2 Level III ecoregions (Southeastern Plains and Mississippi Valley Loess Plains) and contains 2 Level IV subecoregions:

- The **Southeastern Plains and Hills (65e)** contain several north-south trending bands of sand and clay formations. Tertiary-age sand, clay, and lignite are to the west, and Cretaceous-age fine sand, fossiliferous micaceous sand, and silty clays are to the east. With elevations reaching over 650 feet, and more rolling topography and more relief than the Loess Plains (74b) to the west, streams have increased gradient, generally sandy substrates, and distinctive faunal characteristics for west Tennessee. The natural vegetation type is oak-hickory forest, grading into oak-hickory-pine to the south.
- The **Loess Plains (74b)** are gently rolling, irregular plains, 250-500 feet in elevation, with loess up to 50 feet thick. The region is a productive agricultural area of soybeans, cotton, corn, milo, and sorghum crops, along with livestock and poultry. Soil erosion can be a problem on the steeper, upland Alfisol soils; bottom soils are mostly silty Entisols. Oak-hickory and southern floodplain forests are the natural vegetation types, although most of the forest cover has been removed for cropland. Some less-disturbed bottomland forest and cypress-gum swamp habitats still remain. Several large river systems with wide floodplains, the Obion, Forked Deer, Hatchie, Loosahatchie, and Wolf, cross the region. Streams are low-gradient and murky with silt and sand bottoms, and most have been channelized.



**Figure 2-10. Level IV Ecoregions in the Obion River (South Fork) Watershed.** HUC-12 subwatershed boundaries and locations of Henry, Martin, and Milan are shown for reference.

Each Level IV Ecoregion has at least one reference stream associated with it. A reference stream represents a least impacted condition and may not be representative of a pristine condition.



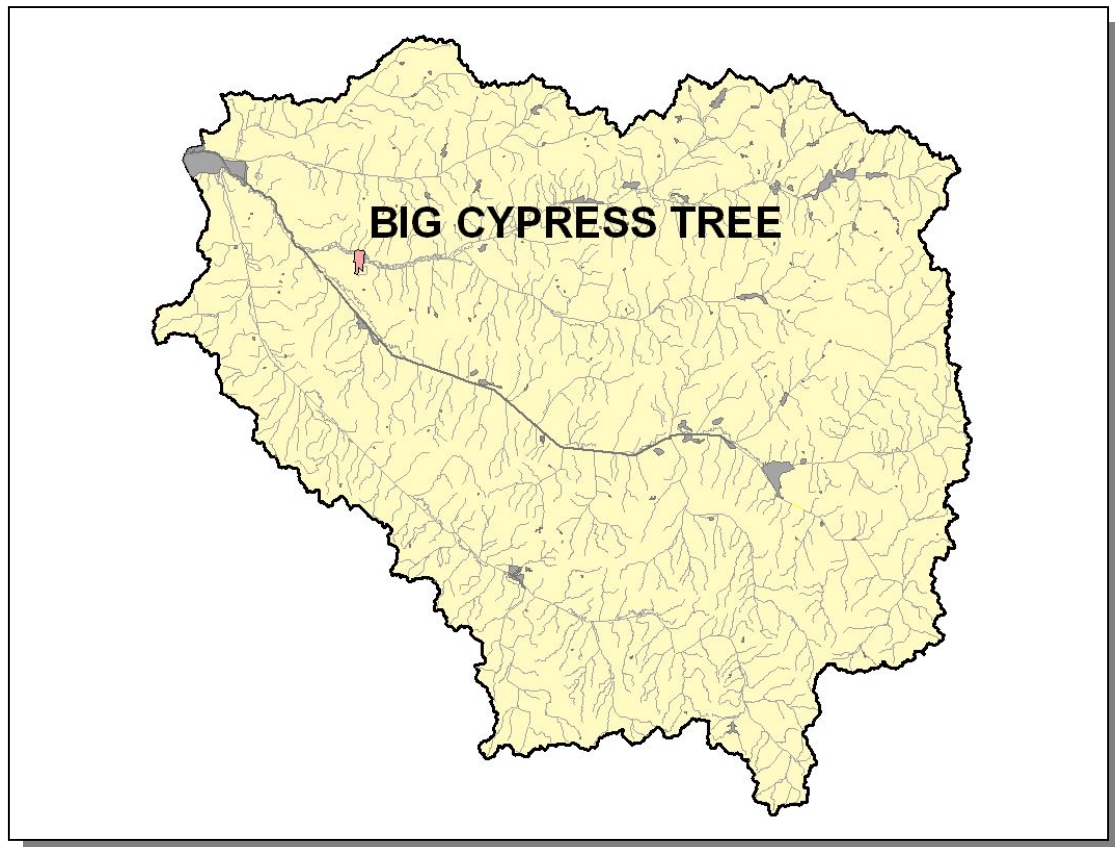
**Figure 2-11. Ecoregion Monitoring Sites in Level IV Ecoregions 65e and 74b.** The Obion River (South Fork) Watershed is shown for reference. More information, including which ecoregion reference sites were inactive or dropped prior to 06/01/2006, is provided in Appendix II.

## **2.6. NATURAL RESOURCES.**

**2.6.A. Designated State Natural Area.** The Natural Areas Program was established in 1971 with the passage of the Natural Areas Preservation Act. TDEC/Division of Natural Areas administers the State Natural Areas program. Further information may be found at <http://www.state.tn.us/environment/na/>.

The Obion River (South Fork) Watershed has one Designated State Natural Area:

**Big Cypress** is a 270-acre natural area in Weakley County. It is a bottomland hardwood and bald cypress forest that occurs along the old river meanders and the channelized Middle Fork of the Obion River (MFOR). A bald cypress forest is present in the many sloughs and the depression areas along the river. This forest is comprised of bald cypress, river birch, sweet gum, sycamore, overcup oak, water oak, willow oak, and cherrybark oak. The bottomland hardwood forest that occurs at higher locations includes green ash, swamp chestnut oak, red maple, and slippery elm with some white oak.



*Figure 2-12. There is One Designated State Natural Area in the Obion River (South Fork) Watershed.*

**2.6.B. Rare Plants and Animals.** The Heritage Program in the TDEC Division of Natural Areas maintains a database of rare species that is shared by partners at The Nature Conservancy, Tennessee Wildlife Resources Agency, the US Fish and Wildlife Service, and the Tennessee Valley Authority. The information is used to: 1) track the occurrence of rare species in order to accomplish the goals of site conservation planning and protection of biological diversity, 2) identify the need for, and status of, recovery plans, and 3) conduct environmental reviews in compliance with the federal Endangered Species Act.

GROUPING	NUMBER OF RARE SPECIES
Crustaceans	0
Insects	0
Mussels	0
Snails	0
Other	0
Amphibians	1
Birds	8
Fish	2
Mammals	5
Plants	6
<b>Total</b>	<b>22</b>

**Table 2-3. There are 22 Known Rare Plant and Animal Species in the Obion River (South Fork) Watershed.**

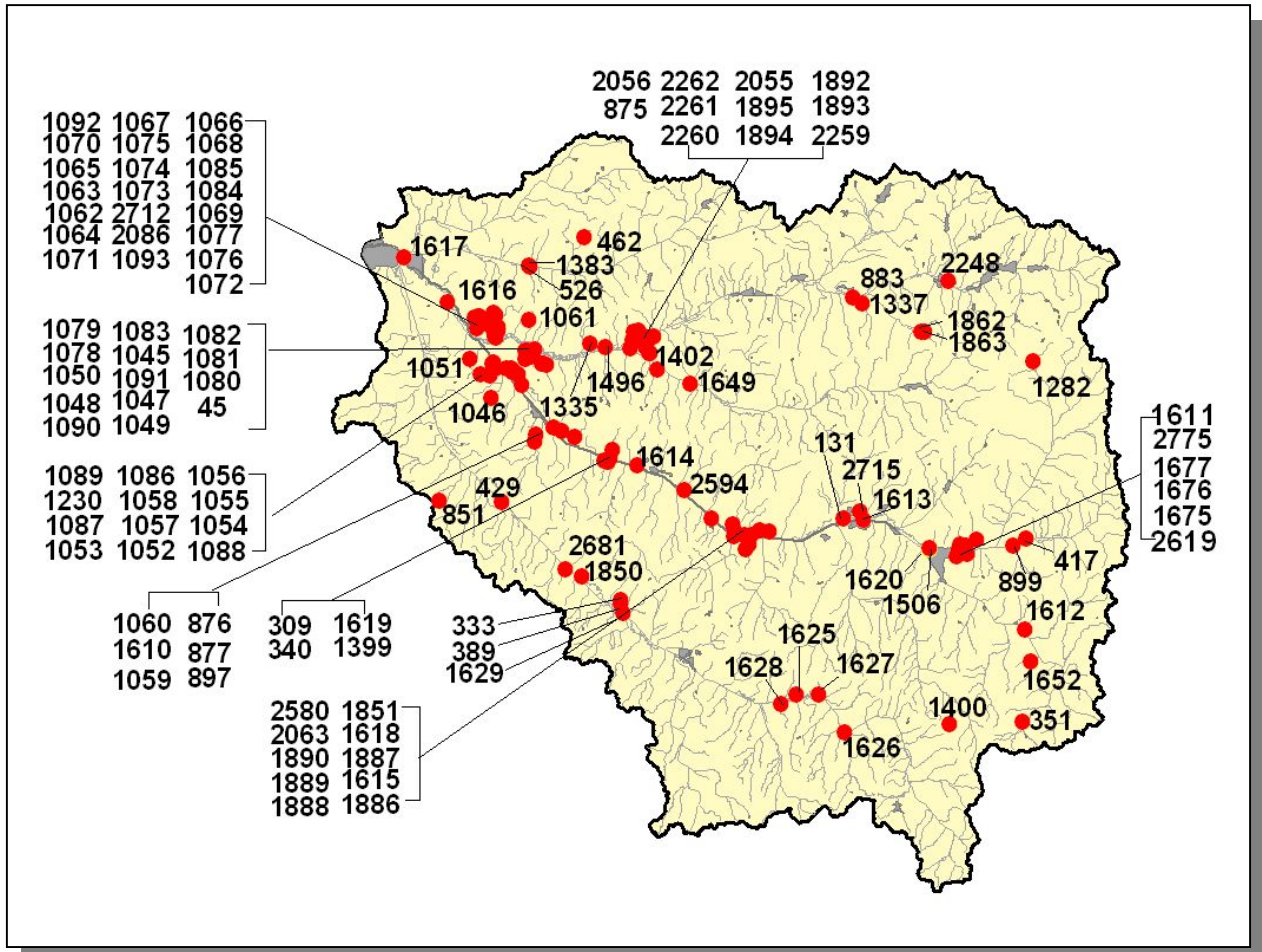
In the Obion River (South Fork) Watershed, there are two known rare fish species and one known rare amphibian species.

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
<i>Etheostoma pyrrhogaster</i>	Firebelly Darter		D
<i>Noturus stigmosus</i>	Northern Madtom		D
<i>Hyla gratiosa</i>	Barking Treefrog		D

**Table 2-4. Rare Aquatic Species in the Obion River (South Fork) Watershed.** State Status: D, Deemed in Need of Management by the Tennessee Wildlife Resources Agency. More information may be found at <http://www.state.tn.us/environment/na/>.

**2.6.C. Wetlands.** The Division of Natural Areas maintains a database of wetland records in Tennessee. These records are a compilation of field data from wetland sites inventoried by various state and federal agencies. Maintaining this database is part of Tennessee's Wetland Strategy, which is described at:

<http://www.state.tn.us/environment/na/wetlands/>

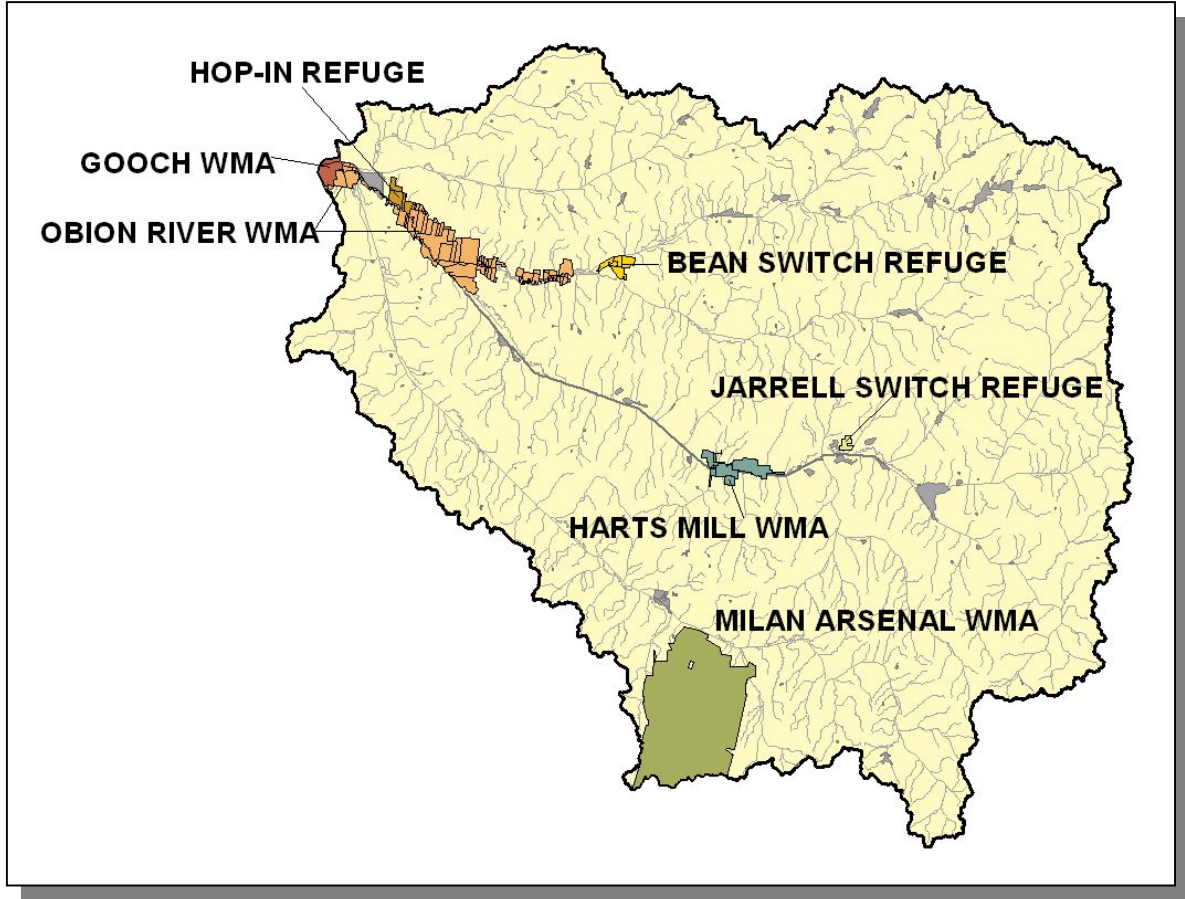


**Figure 2-13. Location of Wetland Sites in TDEC Division of Natural Areas Database in Obion River (South Fork) Watershed.** This map represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands. There may be additional wetland sites in the watershed. More information, including identification of wetland sites labeled, is provided in Appendix II.

## **2.7. CULTURAL RESOURCES.**

**2.7.A. Public Lands.** Some sites representative of the cultural heritage are under state or federal protection:

- Bean Switch Refuge is a 719-acre parcel of land managed by the TWRA. More information may be found at: <http://www.state.tn.us/twra/gis/wmapdf/BeanSwitch.pdf>
- Gooch WMA is a 5,710-acre parcel of land managed by TWRA. More information may be found at: <http://www.state.tn.us/twra/gis/wmapdf/Gooch.pdf>
- Harts Mill Refuge is a 542-acre site managed by TWRA. More information may be found at: <http://www.fws.gov/southeast/planning/PDFdocuments/HatchieFinal/Hatchie%20Final%20CCP.pdf>
- Hop-In Refuge is a 681-acre site managed by the Tennessee Wildlife Resources Agency (TWRA). More information may be found at: <http://www.state.tn.us/twra/gis/wmapdf/HopIn.pdf>
- Jarrell Switch Refuge is a 218-acre site managed by the TWRA. More information may be found at: <http://www.state.tn.us/twra/gis/wmapdf/JarrellSwitchRefuge.pdf>
- Milan Arsenal WMA is an 11,717-acre site managed by the TWRA. More information may be found at: <http://www.southeasternoutdoors.com/outdoors/hunting/tennessee-wma-region1.html>
- Obion River WMA is a 188-acre site managed by TWRA. More information may be found at: <http://www.state.tn.us/twra/gis/wmapdf/ObionRiver.pdf>



**Figure 2-15. Public Lands in the Obion River (South Fork) Watershed.** Data are from Tennessee Wildlife Resources Agency. WMA, Wildlife Management Area.

**2.8. TENNESSEE RIVERS ASSESSMENT PROJECT.** The Tennessee Rivers Assessment is part of a national program operating under the guidance of the National Park Service's Rivers and Trails Conservation Assistance Program. The Assessment is an inventory of river resources, and should not be confused with "Assessment" as defined by the Environmental Protection Agency. A more complete description can be found in the Tennessee Rivers Assessment Summary Report, which is available from the Department of Environment and Conservation and on the web at:

<http://www.state.tn.us/environment/wpc/publications/riv/>

STREAM	NSQ	RB	RF	STREAM	NSQ	RB	RF
Bear Creek	4			Johns Creek	3		
Beaver Creek Canal	3			Lick Creek	4		
Brier Creek	4			Middle Fork Obion River	2,3	2,3	1
Cane Creek (Mud Creek)	4		3	Mud Creek	4		4
Cane Creek (Rutherford Fork Obion River)	3			Old Town Creek	3		
Chestnut Branch Mud Creek	4			Reedy Creek	4		
Clear Creek	3			Rutherford Fork Obion River	3	2	3
Crooked Creek	4	3	2	South Fork Obion River	2	2,3	
DeMoss Creek	3			Spring Creek	3	2,3	2
East Fork Wolf Creek	4			Thompson Creek	4		3
Edmondson Creek	4			Todd Branch South Fork Obion River	3		
Guins Creek	4		2	Trainer Creek	4		
Halley Creek	4			Tumbling Creek	3		
Halls Branch Johns Creek	4			White Creek	3		

**Table 2-6. Tennessee Rivers Assessment Project Stream Scoring in the South Fork Obion River Watershed.**

Categories: NSQ, Natural and Scenic Qualities  
 RB, Recreational Boating  
 RF, Recreational Fishing

Scores: 1. Statewide or greater Significance; Excellent Fishery  
 2. Regional Significance; Good Fishery  
 3. Local Significance; Fair Fishery  
 4. Not a significant Resource; Not Assessed